Claims:

1. A method for improving metal deposition on a patterned dielectric layer, comprising:

a) cleaning the patterned dielectric layer in a processing chamber with a first plasma comprising predominantly argon; and

b) cleaning the patterned dielectric layer in the processing chamber with a second plasma consisting essentially of hydrogen and helium.

2. The method of claim 1, wherein the processing chamber is a pre-clean chamber.

3. The method of claim 1, wherein the first plasma consists essentially of argon.

4. The method of claim 1, wherein the second plasma consists essentially of from about 5% to about 100% of hydrogen by number of atoms and from about 0% to about 95% of helium by number of atoms.

5. The method of claim 1, further comprising depositing a metal on the patterned dielectric layer after exposing the dielectric layer to the first plasma and the second plasma.

6. A method for improving metal deposition on a patterned dielectric layer on a substrate, comprising:

a) cleaning the patterned dielectric layer in a processing chamber with a first plasma comprising predominantly argon, wherein the first plasma is generated by supplying RF power to a coil surrounding the processing chamber and supplying RF bias to a substrate support member supporting the substrate;

b) cleaning the patterned dielectric layer in the processing chamber with a second plasma consisting essentially of hydrogen and helium, wherein the second plasma is generated by supplying RF power to the coil surrounding the processing chamber and supplying RF bias to the substrate support member supporting the substrate; and

c) depositing a metal on the patterned dielectric layer after exposing the dielectric layer to the first plasma and the second plasma.

7. The method of claim 6, wherein the processing chamber is a pre-clean chamber.

8. The method of claim 6, wherein the first plasma consists essentially of argon.

9. The method of claim 6, wherein the second plasma consists essentially of about 5% hydrogen by number of atoms and about 95% of helium by number of atoms.

10. The method of claim 6, further comprising depositing a barrier layer on the patterned dielectric layer prior to depositing the metal.

11. The method of claim 6, wherein less RF bias is supplied to the substrate support member to generate the second plasma than is supplied to the substrate support member to generate the first plasma.

12. The method of claim 6, wherein the first plasma is generated with about 300 W of RF power supplied to the coil and about 300 W of RF bias supplied to the substrate support member, and the second plasma is generated with about 450 W of RF power supplied to the inductive coil and about 10 W of RF bias supplied to the substrate support member.

13. The method of claim 6, wherein each plasma is maintained in the processing chamber for about 60 seconds.

14. A method for improving metal deposition on a patterned dielectric layer on a substrate, comprising:

a) cleaning the patterned dielectric layer in a processing chamber with a first plasma consisting essentially of argon, wherein the first plasma is generated by supplying RF power to a coil surrounding the processing chamber and supplying RF bias to a substrate support member supporting the substrate;

b) cleaning the patterned dielectric layer in the processing chamber with a second plasma consisting essentially of hydrogen and helium, wherein the second plasma is generated by increasing the supply of RF power to the coil surrounding the processing chamber and reducing the supply of RF bias to the substrate support member supporting the substrate;

c) depositing a barrier layer on the patterned dielectric layer after exposing the dielectric layer to the first plasma and the second plasma; and

d) depositing a metal on the barrier layer.

15. The method of claim 14, wherein the processing chamber is a pre-clean chamber.

16. The method of claim 14, wherein the second plasma consists essentially of from about 5% to about 100% of hydrogen by number of atoms and from about 0% to about 95% of helium by number of atoms.

17. The method of claim 14, wherein the second plasma consists essentially of about 5% of hydrogen by number of atoms and about 95% of helium by number of atoms.

18. The method of claim 14, wherein the first plasma is generated with about 300 W of RF power supplied to the coil and about 300 W of RF bias supplied to the substrate support member, and the second plasma is generated with about 450 W of RF power supplied to the coil and about 10 W of RF bias supplied to the substrate support member.

19. The method of claim 14, wherein each plasma is maintained in the processing chamber for about 60 seconds.

20. The method of claim 14, wherein the first plasma is generated at a pressure in the processing chamber of about 0.8 mtorr, and the second plasma is generated at a pressure in the processing chamber of about 80 mtorr.